

Notice of Allowability

Application No.

10/849,197

Examiner

John S. Chu

Applicant(s)

WATANABE ET AL.

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/13/06.
2. ☒ The allowed claim(s) is/are 2,4-7 and 16.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1 An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Richard Gallagher on June 26, 2006.

The application has been amended as follows:

Cancel claims 8-15 as drawn to non-elected claims elected with traverse.

Claim 4, line 1, replace "claim 3" with - - claim 2 - -. The amendment removes a dependency on cancelled claim 3.

Claim 6, line 2 replace "claim 3" with - - claim 2 - -. The amendment removes a dependency on cancelled claim 3.

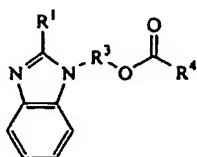
REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: The claimed invention is drawn to the following:

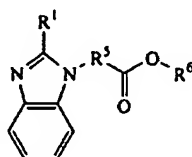
Art Unit: 1752

2. (currently amended) A positive-working resist composition comprising:

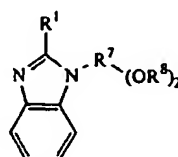
(A) at least one basic compound having a benzimidazole skeleton and a polar functional group, represented by the general formulae (2) to (7):



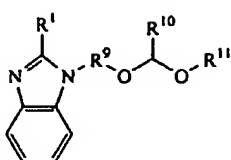
(2)



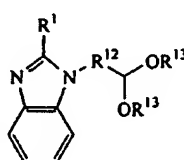
(3)



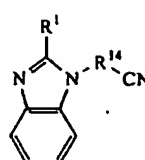
(4)



(5)



(6)



(7)

wherein R¹ is a hydrogen atom, a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms, an aryl group of 6 to 10 carbon atoms, or an aralkyl group of 7 to 10 carbon atoms;

R³, R⁵, R⁹, R¹² and R¹⁴ are each independently a straight, branched or cyclic alkylene group of 1 to 10 carbon atoms;

R⁴ is a hydrogen atom or an alkyl group of 1 to 15 carbon atoms which may contain at least one group selected from among hydroxyl, carbonyl, ester, ether, sulfide, carbonate, cyano and acetal groups;

Art Unit: 1752

R⁶ is an alkyl group of 1 to 15 carbon atoms which may contain at least one group selected from among hydroxyl, carbonyl, ester, ether, sulfide, carbonate, cyano and acetal groups;

R⁷ is a trivalent, straight, branched or cyclic hydrocarbon group of 2 to 10 carbon atoms;

R⁸ is each independently an acyl group of 1 to 10 carbon atoms which may contain at least one ester or ether group, or two R⁸ may bond together to form a cyclic carbonate or cyclic acetal;

R¹⁰ is a hydrogen atom or a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms;

R¹¹ is a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms which may contain at least one group selected from among ether, sulfide and acetal groups, or R¹⁰ and R¹¹ may bond together to form a ring;

R¹³ is a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms, or two R¹³ may bond together to form a ring;

(B) an organic solvent;

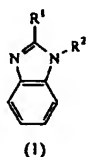
(C) a base resin having an acid labile group-protected acidic functional group which is alkali-insoluble or substantially alkali-insoluble, but becomes alkali-soluble when the acid labile group is eliminated; and

(D) a photoacid generator.

Art Unit: 1752

5. (currently amended) A negative-working resist composition comprising:

(A) ~~the basic compound of claim 1~~ at least one basic compound having a benzimidazole skeleton and a polar functional group, represented by the general formula (I):



wherein R¹ is a hydrogen atom, a straight, branched, or cyclic alkyl group of 1 to 10 carbon atoms, an aryl group of 6 to 10 carbon atoms, or an aralkyl group of 7 to 10 carbon atoms; and R² is a polar functional group-bearing straight, branched, or cyclic alkyl group of 1 to 20 carbon atoms wherein said alkyl group contains as the polar functional group at least one group selected from among ester, acetal, and cyano groups, and optionally at least one group selected from among hydroxyl, carbonyl, ether, sulfide, and carbonate groups;

(B) an organic solvent;

(C) a base resin which is alkali-soluble, but becomes substantially alkali-insoluble when crosslinked with a crosslinking agent;

(D) a photoacid generator; and

Applicants have amended the claims to include photoresist components in with the basic compound to enable the claims and have overcome the 35 U.S.C. 112, first paragraph rejection. YOKOYAMA et al was used in a rejection under 103 with a 102(e) date. This reference is removed as prior art by the certified English translation which perfects the priority date of May 21, 2003 which is prior to the YOKOYAMA et al filing date.

KHOJASTEH et al is removed for lacking the alkylene linkage group as argued by applicants on page 12 of the Remarks.

Claims 6 and 7 are rejoined under In re Ochiai as being claims to a process of use of allowable product claims. The process for pattern processing of allowable claims 3 and 5 is seen as allowable.

Art Unit: 1752

Because none of the prior art references disclose the claimed positive and negative working photoresist composition having the benzimidazole compound of formulae (1) – (7) as claimed, claims 2, 4-7 and 16 are seen as allowable and passed to issue.

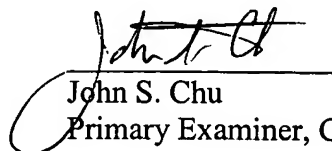
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner’s supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John S. Chu
Primary Examiner, Group 1700

J.Chu
June 26, 2006